Visual Literacy in Anatomy

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All branches of anatomy (gross anatomy, histology, neuroanatomy, and embryology) involve significant amounts of visual identification. Understanding the spatial relationship and visual representations of anatomical structures forms the basis for much of anatomy education, particularly in laboratory courses. Students in these courses frequently struggle with the visual aspects of identification, and many lack the metacognitive awareness to identify this problem. The research presented here details a series of experiments designed to elucidate the factors involved in students' difficulties with studying the visual aspects of anatomy. All of the research projects discussed involved surveying students about their specific study habits. Student populations surveyed include first-year medical students and undergraduates in anatomy, physiology. These populations were surveyed about their study habits in each course, and their level of familiarity with visual learning. Additionally some populations were given a mental rotation test to assess their spatial abilities. These survey data were then correlated with course grades in an effort to determine the most successful study strategies. Active learning approaches (including student-produced drawings) were most strongly correlated with high course grades. However, efforts to teach lower-performing students active learning skills did not produce significant results, possibly due to the lack of a metacognitive component in this instruction. The results of each project indicate a lack of good study skills among students at all levels of anatomy instruction, and highlight the need for more instruction in how to study for anatomy, including metacognitive awareness, especially focused on the visual aspects of the course.